



FEATURES

Adopt advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATIONS

- Battery protection
- Load switch
- Uninterruptible power supply

MECHANICAL DATA

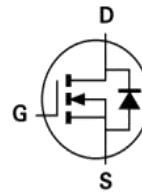
- Case: Molded plastic
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275°C maximum, 10s per JESD 22-B106

MAIN CHARACTERISTICS

I_D	V_{DSS}	$R_{DS(ON)-typ}$ (@ $V_{GS}=10V$)
200A	40V	0.5mΩ

Packing

PDFN5x6



Product specification classification

Part Number	Package	Mode Name	Pack
LX56F200N40	PDFN5x6	LX56F200N40	Tape



Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continue Drain Current	I_D	200	A
Pulsed Drain Current (Note1)	I_{DM}	400	A
Power Dissipation	P_D	180	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	1800	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.67	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W

Note1:Pulse test: 300 μ s pulse width, 2 % duty cycle

Electrical Characteristics at Tc=25°C unless otherwise specified

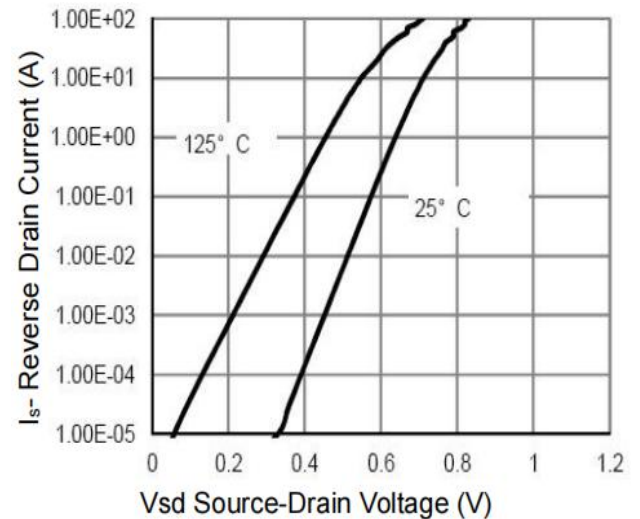
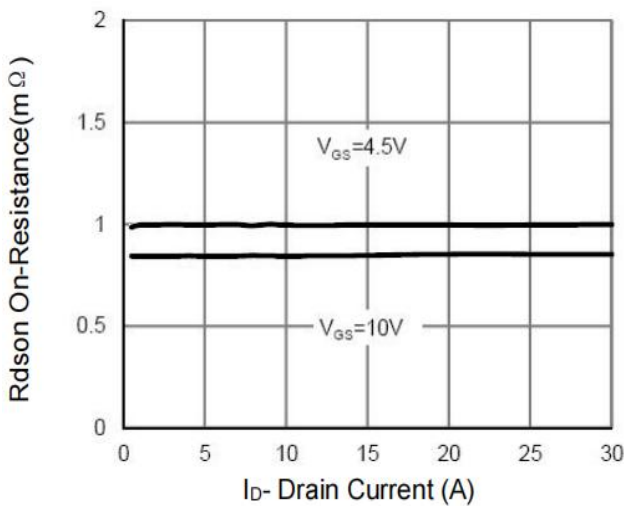
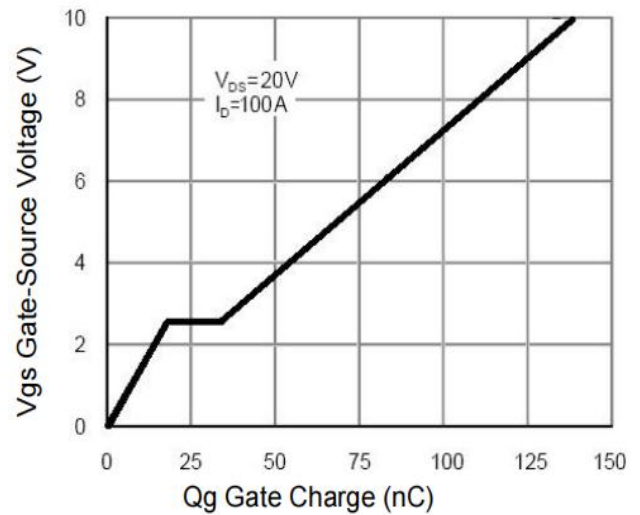
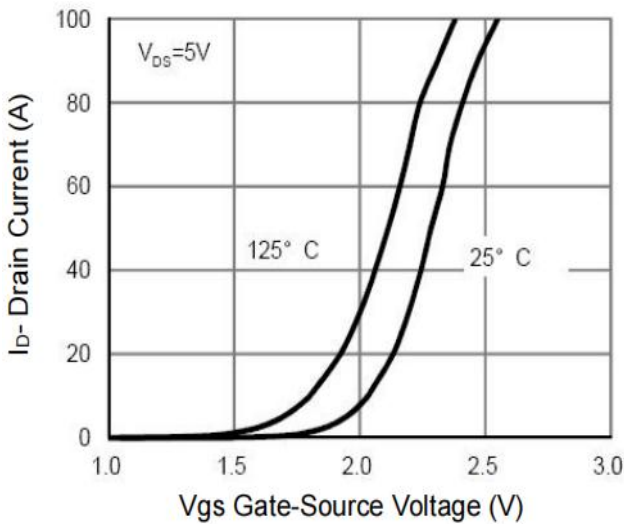
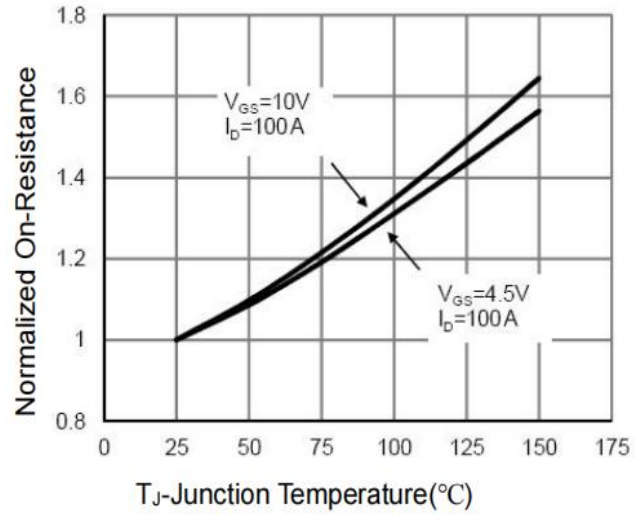
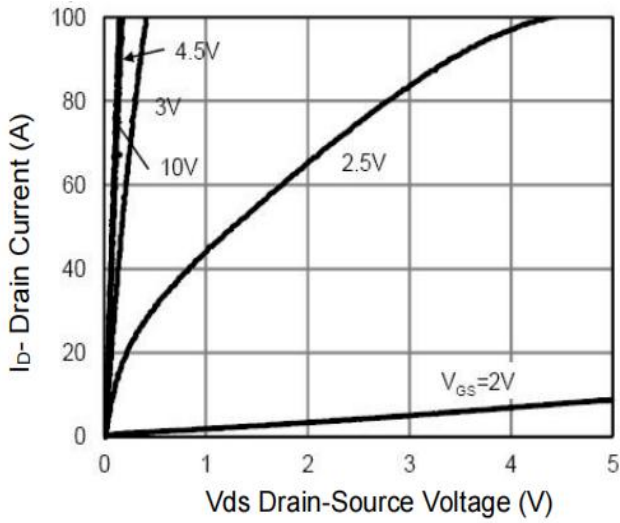
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{GS} = 0 V, I_D = 250 \mu A$	BV_{DSS}	40	-	-	V
Drain-Source Leakage Current	$V_{DS} = 40 V, V_{GS} = 0 V$	I_{DSS}	-	-	1	μA
Gate Leakage Current	$V_{GS} = \pm 20 V, V_{DS} = 0 V$	I_{GSS}	-	-	± 100	nA
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250 \mu A$	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance	$V_{GS} = 10 V, I_D = 1 A$	$R_{DS(on)}$	-	0.5	0.74	m Ω
Input Capacitance	$V_{DS}=20V, V_{GS}=0V, f=1.0MHz$	C_{iss}	-	8085	-	pF
Output Capacitance		C_{oss}	-	2123	-	pF
Reverse Transfer Capacitance		C_{rss}	-	121	-	pF
Turn-on Delay Time(Note2)	$V_{DS}=20V, V_{GS}=10V, R_G=1.6 \Omega, I_D=100A$	$t_{d(ON)}$	-	13	-	ns
Rise Time(Note2)		t_r	-	8	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	55	-	ns
Fall Time(Note2)		t_f	-	10	-	ns
Total Gate Charge(Note2)	$V_{DS}=20V, V_{GS}=10V, I_D=100A$	Q_G	-	137	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	19	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	14	-	nC

Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified

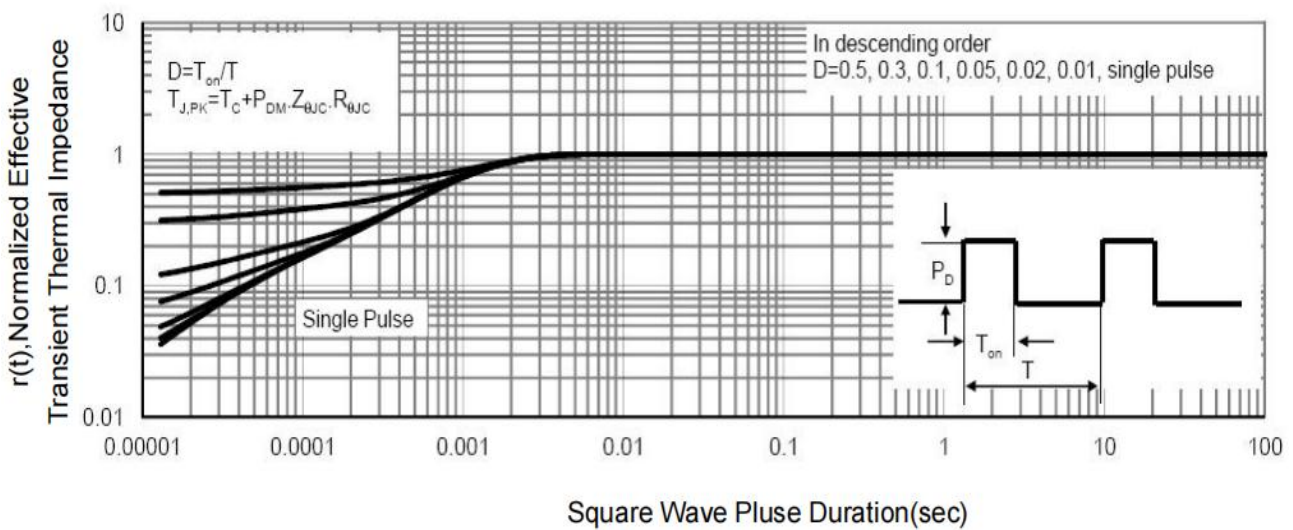
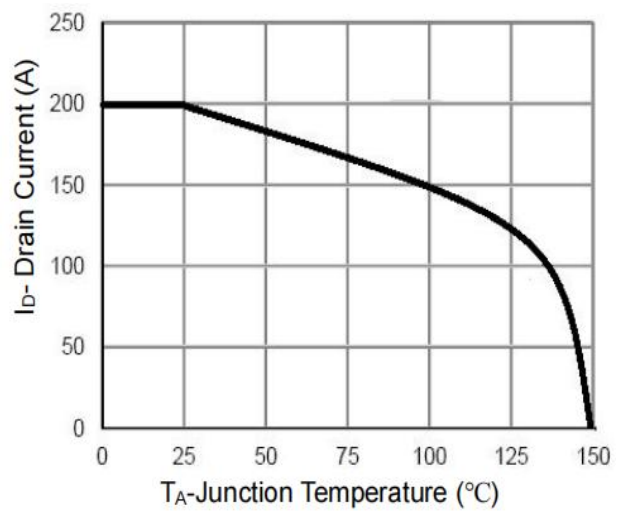
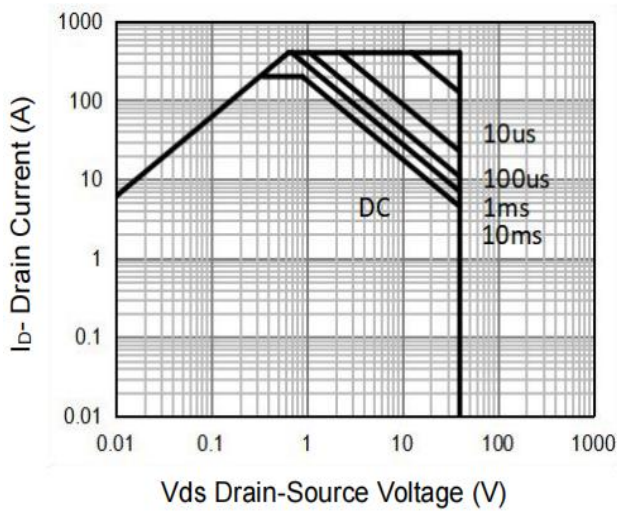
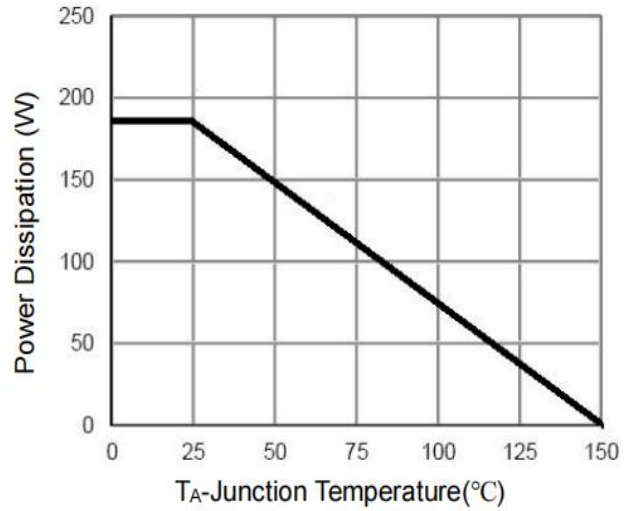
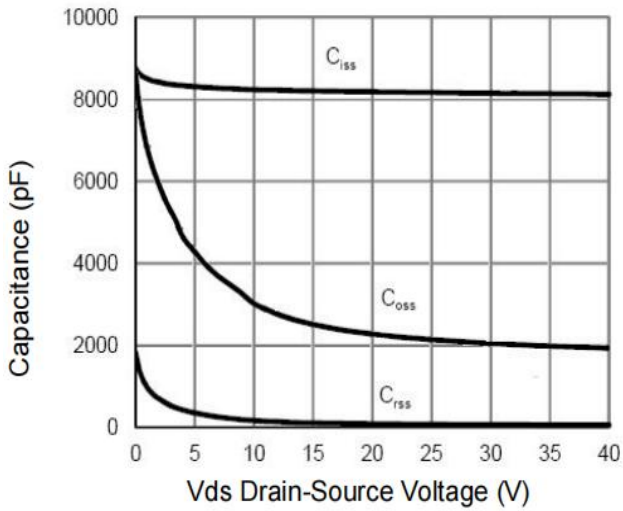
Characteristics	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Maximun Body-Diode Continuous Current		I_S	-	-	200	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=100A, T_J=25$	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	$T_J=25^\circ C, I_S = I_F, dI / dt = 100 A/\mu s$ (Note3)	t_{rr}	-	35	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	120	-	nC

Note2:Pulse test: 300 μ s pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES



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Package Outline Dimensions millimeters

PDFN5*6

